

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A spatial light modulator comprising:
a multi-pixel display array; and
a multi-pixel memory array having pixel storage cells;
wherein at least some pixels of the multi-pixel memory array are disposed outside the display array such that the multi-pixel memory array is physically decoupled from the multi-pixel display array.
2. (Original) The spatial light modulator of claim 1 wherein all of the pixels of the memory array are disposed outside the display array.
3. (Previously Presented) The spatial light modulator of claim 1 further comprising:
at least one local pulse width modulation drive circuit coupled to at least one of the pixel storage cells; and
a global counter coupled to the local pulse width modulation drive circuit.
4. (Original) The spatial light modulator of claim 3 wherein:
the display pixels of the multi-pixel display array comprise first display pixels of a first color, and second display pixels of a second color;
the global counter includes,
a first global counter coupled to the local pulse width modulation drive circuits of the first display pixels, and
a second global counter coupled to the local pulse width modulation drive circuits of the second display pixels.
5. (Original) The apparatus of claim 4 wherein:
the display pixels of the multi-pixel display array further comprise third pixels of a third color.
6. (Original) The apparatus of claim 5 wherein:

the global counter further includes,
a third global counter coupled to the local pulse width modulation drive circuits of the third display pixels.

7. (Original) The apparatus of claim 3 wherein:
the multi-pixel display array includes display pixels of at least two different colors; and
the global counter is adapted to count up to two respective different values and is switchably coupled to the respective different color display pixels to provide global counter values to their local pulse width modulation drive circuits in a time-slice manner.

8. (Original) The apparatus of claim 7 wherein:
the multi-pixel display array includes display pixels of three different colors.

9. (Original) The apparatus of claim 8 wherein:
the three colors are Red, Green, and Blue.

10. (Previously Presented) A spatial light modulator comprising:
control logic;
a pixel memory array coupled to the control logic and occupying a first area of the spatial light modulator; and
a pixel display array coupled to the control logic and the pixel memory array, and occupying a second area of the spatial light modulator, wherein the first and second areas are physically decoupled and substantially non-overlapping.

11. (Original) The spatial light modulator of claim 10 wherein:
the pixel display array comprises a plurality of pixel display cells, each having disposed within its area an associated pulse width modulation driver circuit; and
the pixel memory array comprises a plurality of pixel memory cells.

12. (Original) The spatial light modulator of claim 11 wherein:
the control logic comprises a counter for providing a count value;

the pulse width modulation driver circuit comprises a comparator coupled to compare the count value to a pixel value stored in an associated pixel array cell of the pixel memory array.

13. (Original) The spatial light modulator of claim 12 further comprising:
means for providing non-linearity in the pulse width modulation.
14. (Original) The spatial light modulator of claim 11 wherein the pixel memory array comprises:
more memory cells than the pixel display array has pixel display cells; and
means for providing redundancy in the pixel memory array.
15. (Previously Presented) A method of manufacturing a light modulator, the method comprising:
constructing, in a first area of the light modulator, a pixel display array including multiple display pixels; and
constructing, in a second area of the light modulator that is physically decoupled and substantially non-overlapping with the first area, a pixel memory array including multiple pixel storage cells.
16. (Previously Presented) The method of claim 15 further comprising:
constructing, within each of a plurality of the display pixels, a pulse width modulation driver circuit.
17. (Previously Presented) The method of claim 16 further comprising:
constructing a counter having an output coupled to each of the plurality of display pixels;
constructing, within each of the pulse width modulation driver circuits, a comparator having a first input coupled to the output of the counter and a second input coupled to receive a pixel data value from the pixel memory array.
18. (Previously Presented) The method of claim 17 wherein constructing the comparator comprises:

configuring the comparator to determine whether the pixel data value is greater-than-or-equal-to the counter output.

19. (Previously Presented) The method of claim 18 further comprising:
constructing a lookup table to provide non-linear response in the pulse width modulation.
20. (Previously Presented) The method of claim 19 performed in an order as recited.
21. (Previously Presented) A method of operating a light modulator, the method comprising, for each respective pixel cell in a plurality of pixel cells in a pixel display array:
performing a digital function on a pixel data value and a present counter value to generate one of a first result or a second result wherein a pixel memory array is physically decoupled from the pixel display array to hold the pixel data value; and
in response to the first result, activating the pixel cell;
in response to the second result, deactivating the pixel cell.
22. (Previously Presented) The method of claim 21 wherein:
the digital function comprises a comparison.
23. (Previously Presented) The method of claim 21 further comprising, over time:
incrementing the counter value from 0 to N-1, wherein N is a number of bits of color depth represented in the pixel data value; and then
wrapping back to 0.
24. (Previously Presented) The method of claim 21 further comprising:
detecting that a pixel memory cell in the pixel memory array is not operating correctly; and, responsively
logically replacing that pixel memory cell with a redundant memory cell.
25. (Previously Presented) The method of claim 21 further comprising:
performing non-linear pulse width modulation.
26. (Previously Presented) The method of claim 21 wherein:
the digital function is performed outside the pixel cell.

27. (Previously Presented) The method of claim 21 wherein:
the digital function comprises using the present counter value to index into a
lookup table.

Claims 28-33 (Cancel)

34. (Previously Presented) A projection device comprising:
a polarization beam splitter; and
a first light modulator coupled in optical contact with the polarization beam
splitter, the first light modulator including,
a first pixel display array in a first region of the first light modulator, and
a first pixel memory array in a second region substantially not overlapping the
first region of the first light modulator, such that at least a plurality of pixel memory cells of the
first pixel memory array lie outside the first region of the first light modulator and the first and
second regions are not physically coupled.

35. (Previously Presented) The projection device of claim 34 further comprising:
a second light modulator coupled in optical contact with the polarization beam
splitter, the second light modulator including,
a second pixel display array in a first region of the second light modulator, and
a second pixel memory array in a second region substantially not overlapping the first region of
the second light modulator, such that at least a plurality of pixel memory cells of the second pixel
memory array lie outside the first region of the second light modulator.

Claims 36-43 (Cancel)

44. (Previously Presented) An article of manufacture comprising:
a machine-accessible medium including data that, when accessed by a machine
system, cause the machine system to construct the apparatus of claim 10 as a monolithic
integrated circuit device.

45. (Previously Presented) The article of manufacture of claim 44 wherein the
machine-accessible medium further includes data that, when accessed by the machine system,

cause the machine system to construct the apparatus of claim 13 as a monolithic integrated circuit device.

46. (Previously Presented) An article of manufacture comprising:
a machine-accessible medium including data that, when accessed by a machine system, cause the machine system to perform the method of claim 21.

47. (Previously Presented) The article of manufacture of claim 46 wherein the machine-accessible medium further includes data that, when accessed by the machine system, cause the machine system to perform the method of claim 22.